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FOREST SERVICE

1971 ANNUAL REPORT

Priest River Experimental Forest

by

Calvin L. Carpenter

Intermountain Forest and Range Experiment Station

Ogden, Utah

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Distribution

Ogden
Wellner
Copeland
RWU 1201
RWU 1601
RWU 1401 and 2302
RWU 2303
NFFL
Kaniksu SO
Falls RS
PREF

Intermountain Forest and Range Experiment Station
Ogden, Utah

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INTRODUCTION

1971 marked the sixtieth anniversary of the Priest River Experimental Forest. The Kaniksu National Forest again provided essential assistance in carrying out all phases of administrative activity on the Experimental forest. They also expedited the establishment of three new research studies. About 5 miles of major access roads were constructed through force-account, and 3 1/2 miles of spur road were constructed through timber sale. A total of about 8 acres of young stands on three sites were cleaned, favoring leave-stands of mixed species. Several of the headquarters buildings received plumbing and roofing improvements, and a supplemental seqage disposal system was installed to conform with effluent disposal requirements.

Annual meetings with the Falls District and S.O. personnel were held on Jan. 19, 1971, at the Moscow Lab, and on March 21, 1972, at Priest River Experimental Forest. These discussions are summarized in memoranda to the files (designated 4040 Cooperation), and should be referred to for additional details on management plans and arrangements.

RESEARCH ACTIVITIES

Timber Management Research

A sale of overwood timber on a small area of a couple acres near the entrance to the Experimental Forest headquarters was made under S-24 procedures to release understory grand fir and western hemlock. Felling and skidding disturbance within the limited area caused considerable injury to the understory stand. However, a reasonable number of suitable trees were subsequently marked by Station personnel, and the others removed by a District thinning crew.

Another thinning was made in a 16-year-old natural stand located immediately adjacent to the western white pine V-Q plots along the lower end of the South Ridge road. The trees in this 4 1/2 acre area were pre-marked to favor a mixture of species, with a spacing of about 12 feet. Tentative plans are to utilize this for installation of a fertilization study next year.

The third area that was thinned was located on the upper south-facing slope of the transect across the Benton Creek drainage; about a 2-acre tract of natural regeneration ranging from about 20 to 30 years of age. Again, the trees were pre-marked at about 12-foot spacing to favor a mixed stand of species.

All of the thinning that has been mentioned was done by a 6-woman District crew. Some additional thinning was done by a Station crew on a small area of less than an acre, also on the south side of the transect, just above Road A3.

A number of permanent markers (half of a steel fencepost embedded in concrete) were installed in the Lower Benton Creek clearcuts (Units A & B) and the Upper Benton Creek clearcuts (Units A, B, and C) to provide monumentation for referencing future plot establishments in the regeneration stands. See Figure 2 for approximate marker locations.

Genetics Research

Plantations were established for the purpose of testing the "Nature and Importance of Elevational Variation in Western White Pine". These consist of three areas: (1) Ida Creek, (2) Lower Benton Creek, Unit A, between spur road K-3 and South Ridge Road, and (3) Upper Benton Creek, Unit C between spur roads M-8 and M-9. Approximately 50 man-days of labor were expended in layout, stakup, planting, recording, and maintenance.

Regular annual maintenance was performed in V. Q. plot (INT. 1401-456)

The new addition at the nursery site underwent extensive preparation for establishment of several new nursery beds dealing with a genetic study limited to Douglas-fir. A new fence and irrigation system was installed, which contributed greatly tothe success of the new project. PREF personnel assisted with irrigation, periodic moisture gage checks, rodent control, and fungicide treatment.

Watershed Management Research

The six lysimeter catchment tanks in the Fox Creek drainage were remodeled to prevent freezing problems. The drain lines from pan to tank were excavated and wrapped with 3-inch foil insulation, then a plastic sheet was wrapped around the insulation to prevent saturation with moisture. A 6-inch layer of fill-dirt was placed over this layer, and then back filled to ground level. A 3-foot barrier was installed to form a wing wall from catchment tank to cut bank, and back filled.

Other improvements were also made. A new sliding collar or frame was developed for attaching plastic bags from frame to lysimeter pan. This will speed maintenance approximately 75 per cent, as well as contribute greatly toward prevention of severe frost bite to hands and fingers.

Four new snow courses were established above Stations #52.2, #47.7, #46.6, And #42.2. Permanent markers were placed at sampling points.

The new study, "Water Quality of Surface Water Run-off in Prescribed Burns" is still active. Samples are being gathered and frozen for lab. analyses. The analytical tests will be done in the Forestry Dept. at the University of Idaho in Moscow. Samples of Canyon Creek flow were added to this study in the late spring.

The snow interception and evaporation study, headed by Dr. Don Satterlund (WSU), in cooperation with RWU 1601, was discontinued.

Forest Disease Research

Annual observations were made in the natural inactivation (of blister rust cankers) plot, which was established in 1967 by RWU 2303.

12,414 western white pine 4-0 and 5-0 seedlings, survivors of intense artificial inoculation with blister rust fungus at the Moscow F.S.L. Nursery were outplanted by RWU-2302 during the summer season in the Canyon Creek clearcut. Spacing was 6' x 8'; area was 17 acres. A work crew from the Falls District did the planting, starting April 19, and finishing April 27, 1971. F.S.L. personnel planted 4,000 cuttings of Ribes hudsonianum var. petiolare in the low areas in the planting area and also in the Canyon Creek itself. These cuttings were collected near Elk River on April 27 and were planted April 28.

Dwarf mistletoe infection data were collected at the nursery test site where the study of host specificity and age susceptibility is being carried on. Several mountain hemlocks were re-inoculated with seed of A. c. f. laricis. Annual plot maintenance was also performed.

Forest Insect Research

Eighteen plot trees were re-treated with malathion to eliminate casebearer. The study was initiated in 1967, to determine the effects of repeated western larch defoliations by casebearer. Growth of the trees will be compared with that of neighboring untreated trees.

Forest Influences

Control Weather Station

The monthly averages and yearly totals for 1971's weather observations at the headquarters were remarkably similar to the "normal" figures computed for a 50-year period (table 1). These recordings are continuous and unbroken since 1912. Beside the regular formal monthly reports which are required, the Station receives numerous requests for specific data from varied other agencies, private industry, and private individuals.

Cumulative precipitation for the 1970-1971 "water-year" is graphed in Figure 1, together with the comparative trends for the wettest year, driest year, and the 50-year mean.

Other long-term records of precipitation have been maintained within the Benton Creek Watershed. Monthly totals and averages for 1971 and for the past 12 years are summarized in Table 2.

Fire Weather Station

Daily observations, from May 1 to Oct. 31, continued to be taken in strict compliance with regulations set up by the National Fire Danger Rating System. A daily fire danger record, consisting of line and bar graph designating spread and buildup indexs is maintained through-out the 6-month period. Results of the daily readings are relayed to the Falls Ranger Station at 1600. Regular 10-day reports are mailed to the fire dispatcher at the Supervisor's Office in Sandpoint, Idaho.

Snow Survey

The Benton Spring and Benton Meadow snow courses were measured monthly by Experimental Forest personnel, beginning Jan. 1, and continuing until the end of snow melt at higher elevations (Table 3). These observations are conducted in cooperation with the Soil Conservation Service. Regular monthly reports are compiled and submitted to S.C.S. headquarters on or before the second day of each month during the sampling season.

Table 1. CONTROL STN. MONTHLY PRECIPITATION AND TEMPERATURE-1971.
FIGURES IN PARENTHESES ARE 50-YEAR (1912-1961) AVERAGES.

	PRECIPITATION		TEMPERATURE Ave. Max.		Ave. Min.	
	Inches		Degrees F.			
January	4.43	(402)	31.8	(30.3)	21.6	(16.6)
Feburary	2.54	(3.09)	36.1	(36.4)	25.7	(18.3)
March	3.37	(2.65)	40.7	(45.3)	22.5	(23.5)
April	2.58	(2.04)	54.5	(57.6)	30.0	(29.6)
May	1.78	(2.18)	68.8	(66.7)	38.6	(36.6)
June	3.13	(2.27)	69.6	(73.5)	45.1	(42.5)
July	0.87	(0.89)	82.6	(83.1)	46.9	(45.5)
August	1.84	(0.97)	87.0	(82.0)	47.0	(43.4)
September	2.07	(1.67)	64.2	(70.4)	37.3	(37.4)
October	1.89	(2.96)	53.0	(56.6)	30.6	(32.1)
November	2.98	(3.76)	36.6	(39.6)	28.0	(26.7)
December	5.25	(4.37)	28.3	(32.5)	18.4	(21.1)
ANNUAL	32.73	(30.87)	54.4	(56.1)	32.6	(31.0)

TABLE 2. PRECIPITATION AT 3 STATIONS ON BENTON CREEK.

FIGURES IN PARENTHESES ARE 12-YEAR (1960-1971) AVERAGES

MONTH	CONTROL STN. (ELEV. 2344')		BENTON DAM ELEV. 2640')		BENTON SPRING (ELEV. 4700')	
January	4.43	(4.58)	4.66	(5.31)	4.30	(4.41)
February	2.54	(2.73)	2.55	(2.87)	2.60	(3.54)
March	3.37	(2.97)	3.81	(3.20)	4.30	(3.49)
April	2.58	(2.04)	2.80	(2.22)	3.90	(2.81)
May	1.78	(2.43)	1.88	(2.50)	2.40	(3.22)
June	3.13	(2.14)	3.30	(2.31)	4.30	(2.86)
July	.87	(.77)	1.00	(.81)	1.40	(1.03)
August	1.84	(.13)	1.64	(1.50)	2.60	(1.67)
September	2.07	(1.63)	2.01	(1.58)	2.70	(1.64)
October	1.89	(2.63)	2.01	(2.51)	2.80	(2.83)
November	2.98	(4.58)	2.70	(4.68)	2.60	(4.65)
December	5.25	(4.71)	5.06	(5.23)	7.90	(5.64)
Annual	32.73	(31.34)	33.42	(34.72)	41.80	(37.79)

Fire Weather Station

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TABLE 3. SNOW DEPTH AND WATER CONTENT AT BENTON MEADOW AND BENTON SPRING SNOW COURSES, 1971. FIGURES IN PARANTHESES ARE 27-YEAR AVERAGE (1937-1961)

DATE	BENTON MEADOW (ELEV. 2344')		BENTON SPRING (ELEV. 4775')	
	SNOW DEPTH	WATER CONTENT	SNOW DEPTH	WATER CONTENT
	INCHES			
January-1.	24.4 (12.0)	5.9 (2.7)	38.3 (30.9)	8.9 (8.4)
February-1.	19.8 (19.4)	7.0 (4.8)	48.8 (46.8)	15.8 (13.7)
March-1.	18.9 (19.3)	7.0 (6.0)	49.8 (55.3)	16.3 (18.4)
April-1.	16.4 (6.2)	6.5 (2.3)	65.3 (55.6)	22.1 (20.4)
May-1.	00.0 (0.0)	0.0 (0.0)	39.6 (34.0)	16.7 (14.8)

ADMINISTRATIVE ACTIVITIES

Fire Protection

The annual review of the fire plan's contents and the applicable portion of the District plan along with the outline of the Experimental Forest responsibilities, was discussed during the annual meeting of Forest, District, and Station personnel. The present provisions and action plan for the headquarters area were considered satisfactory.

One fire as reported 7/20/71 at 1000 hour. The official fire name, "Canyon Creek"; location, Section 2A, T58N, R4W; discovered by other F.S. employee. The fire was class A category, man-caused (smoking), controlled 1300 same day; fire out 7/21/71, 1500.

Forest Roads

The regular annual road maintenance included the following: A-road to the junction of D-road; D-road to the junction of C-road; D-1 road to dead end; C-road to junction of N-7 road; S-2 road, 1.2 miles only; and N-7 road to junction of A-1 road. (The time allocated for road maintenance ran out before completion of the scheduled S-2 road.)

New road construction in the North Ridge Timber Sale area includes six new spur roads: 11-1, U-2, U-3, U-4, T-4 and T-5. Reconstruction of C-road will be completed before final approval of sale contract.

Final construction of road G was completed in early fall. Approximately 5 miles was cleared, logged, graded and surfaced, completing the link from lower Canyon Creek to the north Ridge Road. Supplementary clean-up of debris along the roadside will be done in the spring of 1972.

Timber Sales

North Ridge (Georgia-Pacific Lumber Co.).-- Activity on this sale was limited to clearing of right-of-way, and road installation only, with actual cutting to take place this coming season. Description of sale may be reviewed, in the 1970 Annual Report.

"G" Road Right-of-way (Nelson Lumber Company).--Under an Administrative-Use Contract, all timber which met minimum utilization standards (about 270 M. bd. ft.) was felled in advance of road construction, and removed progressively with clearing, or bucked into logs and decked outside the road prism, within clearing limits.

Headquarters Improvements & Maintenance

The maintenance for the summer season included spring clean-up, landscaping, irrigation, weed control, lawn-mowing, dust control, and removal of blister rust infections and dead wood from trees on the headquarters grounds.

The culinary water samples were collected January 1, 1971 and June 1, 1971 and submitted to the Idaho Department of Public Health Lab. in Coeur d'Alene, for bacteriological quality test. The results for the four samples showed no contamination.

The sewage disposal system, and the water system functioned without any troubles. All fire hydrants were inspected and found to be in top order.

Invitation for bids, on a construction contract, was let May 19, 1971 to modify the plumbing and sewage disposal system. (see map). The project was completed Sept. 28, 1971, and included improvement of the lagoon outlet and installation of a gravity sewer line to a drainfield on the west side of the county road. Plumbing improvements were made in the Lodge, Cottage #3, Cottage #4, and the Administration Building.

Buildings

(A) Administration Bldg: New screens were installed on all existing frames. Chimney seal was required to stop leakage around flashing.

(B) Bunkhouse-Messhall: Foundation repair was necessary due to cave-in at south end of building. Plumbing repairs were also made.

(C) Cottage #1 (Lodge): Heat cable was installed on frontal roof edge. Repairs were made in the plumbing and heating systems.

(D) Cottage #2: Regular plumbing repair was accomplished. A cover was installed over the sump, and the living room was refinished.

(E) Cottage #3: The heating system required repair. Trim was replaced on the porch pillars. Nails that fastened the metal roofing were either re-set or replaced with a longer nail. Two basement window frames were replaced.

(F) Cottage #4: Kitchen interior was repainted; minor plumbing and roof repair was completed.

(G) Shop: Excavation, and installation of perforated pipe, extending along the north side and east end of building with a backfill of selected gravel, was necessary to control a drainage problem which had existed for several years. Grading and leveling of the immediate shop area, and gravel fill for the headquarters road system, were all included in the project. This was done for us by the Kaniksu National Forest under charge-back authorization.

(H) Woodshed: Repair was made to exterior finish.

(I) Two-Car garage-A new roof cover was installed, consisting of steel sheeting with color to match the other existing roofs.

(J) Storage Shelters: The two outside buildings used for equipment and supply storage required roof repair. A colored steel sheeting was installed, and rafters were stabilized also.

(K) Regular "all-facility" inspections were conducted throughout the year.

Local Personnel

Position	Dates	Name
Superintendent	1/30/65 - present	C. Carpenter
Forestry Res. Tech. WMR	8/19/64 - present	B. Jeffers
Forestry Aid	6/5/71 - 7/27/71	E. Eldenburg
Maint. Asst.	Intermittent	J. Knoke
Forestry Tech.	12/1/70 - 4/15/71	W. Thompson[1/]
Forestry Tech.	12/./71 - 12/31/71	R. Kracht[1/]

[1/] On loan from Falls Ranger District to assist RWU 1601 with extra work loads through winter and early spring seasons.

Meetings, Group Visits, and Inspections

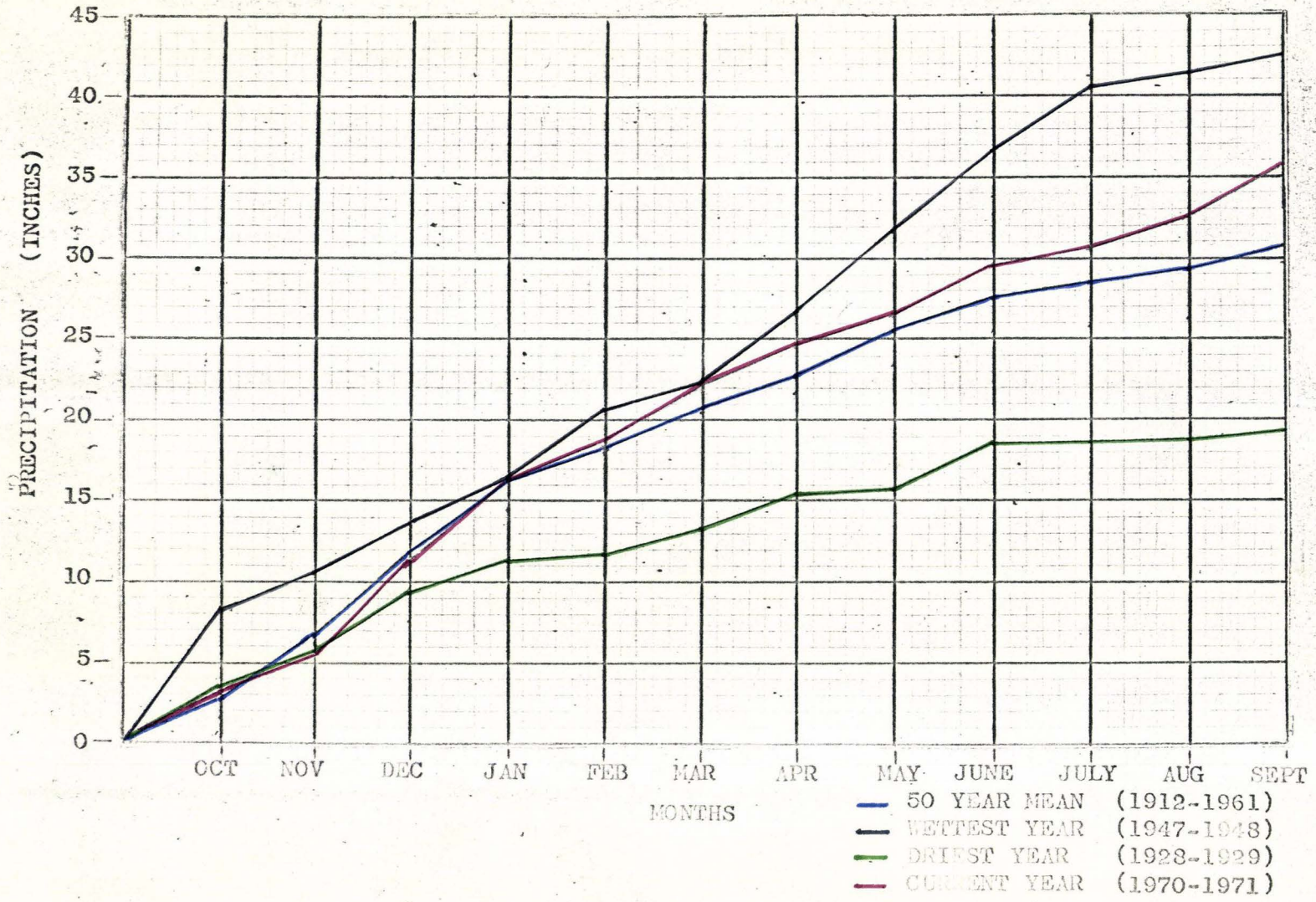
Jan. 19	A watershed management field tour was conducted by Harold Haupt for the benefit of John Patursen, Helsinki, Finland.
Mar. 23 & 24	Facility condition inspection, and improvement planning conference by B. Plowgian, G. Deitschman, F. Olness, and Cal Carpenter.
Apr. 28-29	Visit by Selkirk College (British Columbia) forestry technician students. Tour of the active research projects in progress at PREF led by Marvin Foiles.
May 12	Visit by Spokane Community College students. Tour of research projects in progress at PREF led by Ray Boyd.
May 4	Kaniksu National Forest held a meeting at PREF for the purpose of planning and arranging assignments for the Crew Boss Training School scheduled for May 19, 1971.
May 19 & 20	Kaniksu National Forest, Crew Boss Training School.
May 22-23	W.S.U. field ecology class (22 students)
May 27	Habitat Training Session, Region/and Region 4 representation.
June 14-18	Falls District Fire Guard Training.
Aug. 20-22	G.I.I. J. W. Deinema, M. B. Dickerman, J. B. Hilman, H. E. Howard, and T. C. Nelson (WO), K. W. Harris, C. A. Wellner (DO), R. D. Kiser (SO, Sandpoint) G. H. Deitschman, and H. F. Haupt (FSL, Moscow)
Oct. 5-8	W.M.R. Workshop, 20 representatives throughout Region 1.
Dec. 1-3	University of Montana, 4 members. Watershed research techniques.

Safety inspections numbered 3 during C.Y. 1971.

Research Cooperators

Dates	Individuals	Purpose
Jan-Mar.	James Miller (W.S.U.) (Intermittent)	Assist. with snow interception studies.
Feb.-Dec.	Gordon Snyder (U. of I) Graduate Student Studies (Intermittent)	Supervise "Water Quality in cooperation with RWU 1601.
April 5-6	Don Satterlund (W.S.U.) Tony Gasperius (Spokane)	Inspect and terminate Snow Interception Study.

Fig. 1--CUMULATIVE PRECIPITATION FOR WATER YEAR, OCTOBER THROUGH SEPTEMBER
PRIEST RIVER EXPERIMENTAL FOREST, CONTROL WEATHER STATION



LEGEND FOR FIGURE 2

SEWAGE DISPOSAL LINE

DRAIN FIELD

ROAD MAINTENANCE CY 1971

CENTER LINE PROPOSED ROAD CONSTRUCTION I-2, M-4

NEW ROAD CONSTRUCTION G, U-1, U-2, U-3, U-4, T-4, T-5

ELEVATIONAL VARIATION PLOTS

WESTERN WHITE PINE OUTPLANTING

SALVAGE OPERATION

PERMANENT MONUMENTATION UPPER AND LOWER BENTON CREEK SALE AREA

RELEASE THINNING

SANITATION AND RELEASE THINNING

MAN CAUSED FIRE 7/20/71 CANYON CREEK